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EXAMINER	
BIRKHIMER, CHRISTOPHER D	
ART UNIT	PAPER NUMBER
2186	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/596,155	SO ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER D. BIRKHIMER	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/28/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The current Office Action is in response to the Amendment submitted 01/07/2009. The Examiner acknowledges the amendments to claims 1 - 13. Claims 1-13 are pending in the case.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims **1 – 11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art hereinafter known as AAPA in view of Wells et al. (Pat 5,535,369) in view of Stoppani, JR. (Pat 5,287,500).

With regard to **claim 1**, AAPA teaches recording data **[Specification, Page 1, Lines 15 – 17]** to a free area of a recording area **[Specification, Page 1, Lines 15 – 17, This shows a media for recording different kinds of data. It is implied that the**

area the data is recorded is free or else the data could not be recorded] of an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** having the recording area for storing data which is managed by a file system **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]**, wherein

the recording area of the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** is managed in units of blocks **[Specification, Page 2, Lines 8 – 9]**, and each block includes at least two clusters as units for storing data for the file system **[Specification, Page 2, Lines 14 – 18, This shows the blocks memory is divided into a number of clusters that are between 1 - N where N is an integer. The limitation of two clusters is included in the range of 1 - N clusters since two is an integer]**.

However, AAPA does not specifically disclose the limitation of searching the blocks for a valid block, the valid block having at least a predetermined threshold number of unused memory, determining the valid block from the searched blocks, and writing the data in the determined valid block prior to writing the data in the searched blocks having less then the predetermined threshold number of unused memory.

Wells discloses the limitation of searching the blocks for a valid block, the valid block having at least a predetermined threshold of unused memory **[Column 15, Lines 48 – 60, This shows searching for a block with enough free]**, determining the valid block from the searched blocks, and writing the data in the determined valid block prior to writing the data in the searched blocks having less then the predetermined threshold

number of unused memory **[Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the process of storing data in a block that has enough memory before storing it in a block that does not have enough free memory]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Wells in AAPA, because it increases data coherency **[Column 35, Lines 60 - 67; Column 36, Lines 1 - 4]**.

However, AAPA in view of Wells does not specifically disclose the limitation of a number of unused clusters.

Stoppani discloses a number of unused clusters **[Column 6, Lines 25 – 43]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Stoppani in AAPA in view of Wells, because it ensures that sufficient available space is present on storage device to store additional files **[Column 6, Lines 44 – 47]** and it provides a method for Wells to perform the searching and determining of a valid block.

With regard to **claim 2**, AAPA discloses storing data in clusters **[Specification, Page 2, Lines 1 – 13, This shows the memory of a block is divided into clusters]**.

Wells discloses data are written in unused memory in the valid block **[Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the process of storing data in a block that is valid because it has enough free memory to store the desired data]**.

With regard to **claim 3**, AAPA discloses a storage medium divided into blocks where the memory of the blocks is divided into clusters **[Specification, Page 2, Lines 1 – 13]**.

Wells discloses determining a valid block **[Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the process of storing data in a block that has enough memory before storing it in a block that does not have enough free memory]** and searching for a valid block **[Column 15, Lines 48 – 60, This shows searching for a block with enough free memory]**.

Stoppani discloses counting unused clusters **[Column 6, Lines 41 – 43]**, determining a valid block on the basis of the counting result **[Column 6, Lines 25 – 43, This shows each record contains count data and the record is used to find valid areas in memory]**, generating and holding a valid free area list **["free space table", Column 6, Lines 25 – 28]** which is list information related to the valid block, and searching for a valid block by referring to the valid free area list at data recording process **[Column 6, Lines 25 – 43, This shows searching the table to find a valid location based on clusters to store data]**.

With regard to **claim 4**, AAPA teaches an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** and a block of memory in the information recording medium is divided into smaller clusters **[Specification, Page 2, Lines 14 – 18]**.

Stoppani discloses information about the predetermined threshold number is acquired from memory **[Column 6, Lines 25 – 43, The information about the**

predetermined threshold number is the information that indicates the predetermined threshold number of unused clusters is free in the memory and this is acquired from the memory with the use of a count indicating how many unused clusters there is].

With regard to **claim 5**, AAPA teaches a block of storage is divided into smaller clusters **[Specification, Page 2, Lines 1 - 13]**.

Wells discloses the predetermined threshold number is a value at least one-half of the amount of memory in each block **[Column 15, Lines 48 – 60; Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the search and determination of free memory in a block is based on the amount of data that is to be written in the memory. At times the data to be written will be equal to the storage in at least one-half of the number of clusters in each block and at other times it will be less then one-half of the number of clusters in each block. There is no limitation that the predetermined number is always a value at least one-half of the number of clusters included in each block]**.

Stoppani discloses deciding memory space based on a number of unused clusters **[Column 6, Lines 25 – 43]**.

With regard to **claim 6**, AAPA teaches a data processing apparatus **[Specification, Pages 1 – 2, The Applicant discloses writing data to a memory device which implies there is an data processing apparatus]** for writing or reading data **[Specification, Page 1, Lines 15 – 17]** to or from an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, wherein

a recording area of the information recording medium **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]** is managed in units of blocks **[Specification, Page 2, Lines 8 – 9]**, each block **[Specification, Page 2, Lines 8 – 9]** includes at least two clusters **[Specification, Page 2, Lines 14 – 18, This shows the blocks memory is divided into a number of clusters that are between 1 - N where N is an integer. The limitation of two clusters is included in the range of 1 - N clusters since two is an integer]**, and the clusters are units for storing data for a file system **[Specification, Page 2, Lines 14 – 18]**;

the data processing apparatus **[Specification, Pages 1 – 2, The Applicant discloses writing data to a memory device which implies there is an apparatus to perform the writing]** comprises:

an I/O processor that processes input and output of information for the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is implied there is an I/O processor associated with the information recording medium in order to save to and read from the information recording medium]**;

a file system controller **[Specification, Page 2, Lines 1 – 7]** that manages data stored in the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, as a file;

a data processor that controls writing and reading of data to and from the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is implied there is a data processor associated with the information recording medium in order to save to and read from the information recording medium]**;

a valid free area manager that manages, by units of blocks, information for the blocks **[Specification, Page 2, Lines 1 – 13, This shows the access units of the file system are the same as blocks]**.

However, AAPA does not specifically disclose the limitation of a valid free area manager that manages information for the blocks containing at least a predetermined threshold number of unused clusters in an area of the information recording medium and when necessary to record data to a new free area, the data processor, as a control, searches for a valid block from the managed blocks with reference to the information held in the valid free area manager, and writes data to the searched valid block prior to writing data to another one of the managed blocks.

Wells discloses a when necessary to record data to a new free area, the data processor, as a control, searches for a valid block from the managed blocks and writes data to the searched valid block prior to writing data to another one of the managed blocks **[Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows when data is recorded to a free area the blocks in the memory are first searched and then the information about the searched blocks is analyzed to determine if there is a block to store the data. A valid block is a block with enough free memory to store the data. If one of the blocks is a valid block the data is written into the valid block. If none of the blocks are a valid block an erase operation is performed to empty a block and then the data is written into the previously invalid block]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Wells in AAPA, because it increases data coherency **[Column 35, Lines 60 - 67; Column 36, Lines 1 - 4]**.

However, AAPA in view of Wells does not specifically disclose the limitation of valid free area manager that manages information for the memory containing at least a predetermined threshold number of unused clusters and using the information in the valid free area manager when writing data to memory.

Stoppani discloses valid free area manager **["free space table", Column 6, Lines 25 – 28]** that manages information for the memory containing at least a predetermined threshold number of unused clusters **[Column 6, Lines 25 – 43]** and using the information in the valid free area manager **["free space table", Column 6, Lines 25 – 28]** when writing data to memory **[Column 6, Lines 44 – 47]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Stoppani in AAPA in view of Wells, because it ensures that sufficient available space is present on storage device to store additional files **[Column 6, Lines 44 – 47]** and it provides a method for Wells to perform the searching and determining of a valid block.

With regard to **claim 7**, AAPA teaches memory is divided into blocks and then subdivided into smaller clusters **[Specification, Page 2, Lines 14 – 18, This shows the blocks memory is divided into a number of clusters]**.

Stoppani discloses the valid free area manager **["free space table", Column 6, Lines 25 – 28]** holds a valid free list which is list information **[Column 6, Lines 25 - 31]**

related to the valid block which is one of the blocks including at least the predetermined threshold number or unused clusters **[Column 6, Lines 25 – 43, This shows the linked list contains which clusters are free and which are not in the blocks of AAPA]**.

With regard to **claim 8**, AAPA teaches an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** and a block of memory in the information recording medium is divided into smaller clusters **[Specification, Page 2, Lines 14 – 18]**.

Stoppani discloses information about the predetermined threshold number is acquired from memory **[Column 6, Lines 25 – 43, The information about the predetermined threshold number is the information that indicates the predetermined threshold number of unused clusters is free in the memory and this is acquired from the memory with the use of a count indicating how many unused clusters there is]**.

With regard to **claim 5**, AAPA teaches a block of storage is divided into smaller clusters **[Specification, Page 2, Lines 1 - 13]**.

Wells discloses the predetermined threshold number is a value at least one-half of the amount of memory in each block **[Column 15, Lines 48 – 60; Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the search and determination of free memory in a block is based on the amount of data that is to be written in the memory. At times the data to be written will be equal to the storage in at least one-half of the number of clusters in each block and at other times it will be less**

then one-half of the number of clusters in each block. There is no limitation that the predetermined number is always a value at least one-half of the number of clusters included in each block].

Stoppani discloses deciding memory space based on a number of unused clusters **[Column 6, Lines 25 – 43]**.

With regard to **claim 10**, AAPA teaches a recording area of an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** having a recording area for storing data and stored data which is managed by a file system **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]**, wherein

the recording area of the information recording medium **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]** is managed in units of blocks **[Specification, Page 2, Lines 8 – 9]**, and each block **[Specification, Page 2, Lines 8 – 9]** includes at least two clusters **[Specification, Page 2, Lines 14 – 18, This shows the blocks memory is divided into a number of clusters that are between 1 - N where N is an integer. The limitation of two clusters is included in the range of 1 - N clusters since two is an integer]** as units for storing data for the file system **[Specification, Page 2, Lines 14 – 18]**.

However, AAPA does not specifically disclose the limitation of determining whether the number of unused clusters contained in each block is within a predetermined range and moving data to unused clusters contained in the block having the number of unused clusters which is within the specified range, from used clusters in another block.

Wells discloses determining whether the amount of unused memory contained in each block is within a predetermined range **[Column 15, Lines 48 – 60, This shows searching for a block with enough free]** and moving data to unused memory contained in the block having the amount of unused memory which is within the specified range **[Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the process of storing data in a block that has enough memory before storing it in a block that does not have enough free memory]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Wells in AAPA, because it increases data coherency **[Column 35, Lines 60 - 67; Column 36, Lines 1 - 4]**.

However, AAPA in view of Wells does not specifically disclose the limitation of a number of unused clusters as what is searched and what is used as a basis of where to store data.

Stoppani discloses a number of unused clusters as what is searched and what is used as a basis of where to store data **[Column 6, Lines 25 – 43]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Stoppani in AAPA in view of Wells, because it ensures that sufficient available space is present on storage device to store additional files **[Column 6, Lines 44 – 47]** and it provides a method for Wells to perform the searching and determining of a valid block.

However, AAPA in view of Wells in view of Stoppani does not specifically disclose the limitation of moving data from a used cluster to an unused cluster.

The Examiner is taking Official Notice that it would have been obvious to someone of ordinary skill in the art at the time of the invention how to move data from one location in memory, used cluster, to another location in memory, unused cluster. Moving of data is a basic operation of memory that is well known and practiced in the art of computer memory. AAPA teaches that the memory is managed in clusters which combined make up a block. Wells discloses searching a memory location for a size of memory that is large enough to store the data that is desired to be stored. Stoppani discloses the determination of enough memory is based on the count of number of unused clusters. This then shows that the teachings of AAPA in view of Wells in view of Stoppani would be used when transferring data from one location in memory to another location in memory so there are no errors which would arise when trying to write data to a location without enough memory. Wells goes on further to teach that when there is not enough free memory to store data there is a section of memory erased which makes it unused so data can be stored in the memory. Data that is stored is stored into a section of memory labeled as unused since data is being stored there and the data either was just created from a process or was retrieved from a used section of memory which contained the data.

With regard to **claim 11**, AAPA teaches a block of storage is divided into smaller clusters **[Specification, Page 2, Lines 1 - 13]**.

Wells discloses the predetermined threshold number is a value at least one-half of the amount of memory in each block **[Column 15, Lines 48 – 60; Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows the search and determination of free**

memory in a block is based on the amount of data that is to be written in the memory. At times the data to be written will be equal to the storage in at least one-half of the number of clusters in each block and at other times it will be less then one-half of the number of clusters in each block. There is no limitation that the predetermined number is always a value at least one-half of the number of clusters included in each block].

Stoppani discloses deciding memory space based on a number of unused clusters **[Column 6, Lines 25 – 43]**.

With regard to **claim 13**, AAPA teaches a data processing apparatus **[Specification, Pages 1 – 2, The Applicant discloses writing data to a memory device which implies there is an data processing apparatus]** for writing or reading data **[Specification, Page 1, Lines 15 – 17]** to or from an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, the information recording medium being managed in units of blocks **[Specification, Page 2, Lines 8 – 9]** with each block including at least two clusters as units for storing data **[Specification, Page 2, Lines 14 – 18, This shows the blocks memory is divided into a number of clusters that are between 1 - N where N is an integer. The limitation of two clusters is included in the range of 1 - N clusters since two is an integer]**, the apparatus comprising:

an I/O processor that processes input and output of information for the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is**

implied there is an I/O processor associated with the information recording medium in order to save to and read from the information recording medium];

a file system controller **[Specification, Page 2, Lines 1 – 7]** that manages data stored in the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, as a file;

a data processor that controls writing and reading of data to and from the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is implied there is a data processor associated with the information recording medium in order to save to and read from the information recording medium]**.

However, AAPA does not specifically disclose the limitation of a block classifier that classifies each block according to the number of unused clusters contained in each block and holds information about the classification and wherein as a control, the data processor, with reference to the classification information held in the block classifier, determines for each block whether or not the number of unused clusters contained in a block is within a predetermined range, and when one of the block has unused clusters within the predetermined range, moves data to the unused clusters contained in the one of the blocks from used clusters in another of the blocks.

Wells discloses determining for each block whether or not the number of unused memory contained in a block is within a predetermined range, and when one of the blocks has unused memory within the predetermined range, moves data to the unused memory contained in the one of the blocks **[Column 18, Lines 44 – 67; Column 19, Lines 1 – 22, This shows when data is recorded to a free area the blocks in the**

memory are first searched and then the information about the searched blocks is analyzed to determine if there is a block to store the data. A valid block is a block with enough free memory to store the data. If one of the blocks is a valid block the data is written into the valid block. If none of the blocks are a valid block an erase operation is performed to empty a block and then the data is written into the previously invalid block].

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Wells in AAPA, because it increases data coherency **[Column 35, Lines 60 - 67; Column 36, Lines 1 - 4]**.

However, AAPA in view of Wells does not specifically disclose the limitation of a block classifier that classifies each section of memory according to the number of unused clusters contained in each section of memory and holds information about the classification and the classification information is used to determine if the amount of unused clusters is within a predetermined range and moving data to unused clusters contained in the one of the blocks from used clusters in another of the blocks.

Stoppani discloses a block classifier **["free space table", Column 6, Lines 25 – 28]** that classifies each section of memory according to the number of unused clusters contained in each section of memory and holds information about the classification and the classification information is used to determine if the amount of unused clusters is within a predetermined range **[Column 6, Lines 25 – 47, This shows classifying a section of memory as being able to store data or not based on the number of**

unused clusters in a section of memory and holding the information about the classification in the table as a count].

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Stoppani in AAPA in view of Wells, because it ensures that sufficient available space is present on storage device to store additional files **[Column 6, Lines 44 – 47]** and it provides a method for Wells to perform the searching and determining of a valid block.

However, AAPA in view of Wells in view of Stoppani does not specifically disclose the limitation of moving data from a used cluster to an unused cluster.

The Examiner is taking Official Notice that it would have been obvious to someone of ordinary skill in the art at the time of the invention how to move data from one location in memory, used cluster, to another location in memory, unused cluster. Moving of data is a basic operation of memory that is well known and practiced in the art of computer memory. AAPA teaches that the memory is managed in clusters which combined make up a block. Wells discloses searching a memory location for a size of memory that is large enough to store the data that is desired to be stored. Stoppani discloses the determination of enough memory is based on the count of number of unused clusters. This then shows that the teachings of AAPA in view of Wells in view of Stoppani would be used when transferring data from one location in memory to another location in memory so there are no errors which would arise when trying to write data to a location without enough memory. Wells goes on further to teach that when there is not enough free memory to store data there is a section of memory erased which makes

it unused so data can be stored in the memory. Data that is stored is stored into a section of memory labeled as unused since data is being stored there and the data either was just created from a process or was retrieved from a used section of memory which contained the data.

4. Claim **12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art hereinafter known as AAPA in view of Wells et al. (Pat 5,535,369) in view of Stoppani, JR. (Pat 5,287,500) as applied to claim **10** above, and further in view of Paul Massiglia ("The Raid Book: A Storage System Technology Handbook").

With regard to **claim 12**, AAPA teaches the data in the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** is managed by a FAT file system **[Specification, Page 2, Lines 1 – 7]**.

However, AAPA in view of Wells in view of Stoppani does not specifically disclose the limitation of the file system having a first and second tables as link information, and when a valid FAT flag showing which one of the first and second tables is valid is provided, the method further includes after moving data: writing the second FAT table to the information recording medium, setting the valid FAT flag to show that the second FAT table is valid, copying the content of the second FAT take to the first FAT table in the information recording medium, and setting the valid FAT flag to show that the first FAT table is valid.

Massiglia discloses a file system having a first and second tables as link information **[Pages 96 – 97, This shows two memory devices with file systems that contain a table of information on the memory devices]**, and when a valid FAT flag showing which one of the first and second tables is valid is provided **[Fig 44, This shows there is data on the storage devices which shows there is a flag indication that indicates the file system on each memory device is valid and is able to receive data at one time or another]**, the method further includes after moving the data: writing the second FAT table to the information recording medium **[The first and second table are written to memory every time data is moved to the memory devices to update the file tables and show what data is one which memory device]**, setting the valid FAT flag to show that the second FAT table **[Fig 44, Page 96, The second FAT table is the table that manages data on the replacement disk]** is valid **[Fig 44, The data on the replacement disk shows there is a flag or indication that is set to indicate that the replacement disk is valid and able to receive data]**, copying the content of the second FAT table **[Fig 44, Page 96, The second FAT table is the table that manages data on the replacement disk]** to the first FAT table **[Fig 44, Page 96, The second FAT table is the table that manages data on the replacement disk]** in the information recording medium **["Recovering From Disk Failures", Pages 96 – 97, This shows recovering data from the replacement disk the memory disk. Since data is copied from the replacement disk the file system information will also be copied]**, and setting the valid FAT flag to show that the first FAT table is valid **[Page 97, Lines 6 – 8, This shows a valid flag for the first FAT**

table, which is the FAT table on the member disk being rebuilt, gets set once it is totally rebuilt since it is not a valid for reads].

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Massiglia in AAPA in view of Wells in view of Stoppani, because using mirrored backup protects against both data loss and loss of access to data in the event of memory disk failure **[Page 95, Lines 38 – 39]**

Response to Amendment

5. The Examiner has introduced the Wells et al. (Pat 5,535,369), Stoppani, JR. (Pat 5,287,500), and Paul Massiglia ("The Raid Book: A Storage System Technology Handbook") references to teach the amended limitation to the claims.

Response to Arguments

6. Applicant's arguments, see pages 10 – 14, filled 01/07/2009, with respect to claims 1 – 13 under 35 U.S.C. §103(a) have been considered but are moot in view of the new ground(s) of rejection.

The amendments to the claims have changed the scope of the independent claims requiring a new search. The dependent claims scope has also been changed due to amendments to the dependent claims themselves or for being dependent on an amended claim.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Iida et al. (Pat 6,385,690) discloses writing data in blocks that contain multiple clusters and storing data in a block with the smallest amount of unused clusters that will hold the data **[Column 20, Lines 9 – 15]**.

Orcutt (Pat 6,377,958) discloses a system that counts a number of unused clusters **[Column 20, 48 – 62]**.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Direction of Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER D. BIRKHIMER whose telephone number is (571)270-1178. The examiner can normally be reached on M-H 7:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher D Birkhimer
Examiner
Art Unit 2186

/Christopher D Birkhimer/
Examiner, Art Unit 2186

/Pierre-Michel Bataille/
Primary Examiner, Art Unit 2186